This study is divided into two parts.

Part I

AN EVALUATION OF THE EFFECTIVENESS OF A PREARTERIOGRAM TEACHING PROGRAM: AN EXPLORATORY STUDY

BY

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ABSTRACT

AN EVALUATION OF THE EFFECTIVENESS
OF A PREARTERIOGRAM TEACHING PROGRAM:
AN EXPLORATORY STUDY

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An exploratory study was conducted in order to identify what information patients have and/or want to have about an arteriogram prior to the procedure being performed, and to evaluate the effectiveness of a prearteriogram teaching program in providing this information. The final sample consisted of nine adult patients who were hospitalized and scheduled for arteriography (except for cerebral arteriograms). Data were collected over a two-and-a-half month period utilizing a prearteriogram and a postarteriogram questionnaire.

Subjects were contacted prior to the arteriogram and asked to complete part of the prearteriogram questionnaire. The Singer Caramate (Model SP-2) was then used to present the prearteriogram teaching program (a cassette tape recording with accompanying slides) to the subjects. The program provided the subjects with information about the arteriogram, including preparation for the procedure, how the procedure was performed,

and postprocedural care. The subjects then completed the remainder of the prearteriogram questionnaire. Within 48 hours of the completion of the arteriogram the subjects were again contacted and asked to complete the postarteriogram questionnaire.

Results of this study indicated that these subjects had very little, if any, information about the arteriogram prior to the procedure being performed, but that they did desire information about the preparation for the test, the procedure itself, and postprocedural care. Most of the subjects in the study indicated that they acquired information about the arteriogram from the prearteriogram teaching program, and that this program was helpful to them in preparing them for the arteriogram. The majority of the subjects also recommended that future patients scheduled for arteriograms be given this information by presenting the program to them prior to the procedure. Thus, the investigator postulated that the presentation of information in an audio-visual program prior to an arteriogram is an effective means of providing information about the procedure to patients.

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CHAPTER I

INTRODUCTION

The "consumer revolution" has spread to the health care field. Quinn and Somers explained this trend in consumerism as follows:

> The growth of consumerism has something to do with the transition from an economy of scarcity to one of abundance, with increasing education and income. It has a lot to do with television, faster communications, and rising levels of expectation. It is related to the national commitment to good health care for all Americans. (16:243)

The consumer is increasingly recognizing his rights to courtesy, privacy, and information, and thus is rejecting the traditional role of the "good" patient, "the one who does as he's told, asks no awkward questions, and doesn't make waves." (11:26)

In recognition of this growing consumer interest in health care the American Hospital Association (AHA) issued a Patient's Bill of Rights in 1973. The patient's "right to know" is acknowledged in the majority of the rights listed in the Patient's Bill of Rights, and is of importance since "every human being of adult years and sound mind has the right to determine what shall be done with his own body." (11:27) Thus the patient must have the necessary information to enable him to make intelligent decisions about his health care. The following is an example of one of the rights in the AHA's Patient's Bill of Rights which advocates informing the patient:

> The patient has the right to receive from his physician information necessary to give informed consent prior to the start of any procedure and/or treatment. Except in emergencies, such information for informed consent should include but not necessarily be

> limited to the specific procedure and/or treatment, the medically significant risks involved, and the probable duration of incapacitation. Where medically significant alternatives for care or treatment exist, or when the patient requests information concerning medical alternatives, the patient has the right to such information. The patient also has the right to know the name of the person responsible for the procedures and/or treatment. (17:3)

Thus it can be seen how the concept of "informed consent" has arisen from the proposed Patient's Bill of Rights. Kelly defined consent as "a free, rational act which presupposes knowledge of the thing to which consent is given by a person who is legally capable of consent." (11:28) She listed the following as the basic elements of informed consent:

1. An explanation of the condition.
2. A fair explanation of the procedures to be used and the consequences.
3. A description of alternative treatments or procedures.
4. A description of the benefits to be expected (not assured).
5. An offer to answer the patient's inquiries.
6. An understanding that the patient is not being coerced to agree and may withdraw if he changes his mind. (11:28)

Brown also discussed the concept of informed consent in relation to angiography procedures. She suggested the following considerations:

> Under the new doctrine of informed consent, the patient must be informed of matters which are relevant to the care or procedure he is about to receive. This means explanation of the risks, alternative procedures, benefits to be derived, and hazards to be borne if the patient refuses to undergo the recommended procedure. The physician has the legal responsibility to obtain the informed consent before the procedure. The patient is the final arbiter as to whether he will take his chances and undergo the recommended angiography, or whether he will risk the consequences without it. (3:254-255)

Patient education can be seen as an important means of fulfilling the patient's right to know, and nurses can play an important part in pro-

viding some of the information needed by the patient to make intelligent decisions regarding his care and treatment.

Statement of the Problem

Although the importance of preoperative teaching has been recognized, it is the investigator's belief that most patients do not receive enough information about many of the more complex diagnostic tests prior to their being performed. Lack of information about diagnostic procedures and the routines associated with them could be stress-producing to the patient and could cause anxiety and/or non-compliance before, during, or after the diagnostic procedure. Results of the tests could be altered by a patient's failure to understand the preparation for the test and/or his role during the performance of the test. Increased hospitalization costs could result if the test has to be rescheduled for another day because the patient disregarded preparation routines which he did not understand or know about. Valuable time might also be lost by having to reschedule tests because the patient was inadequately prepared either physically or psychologically.

Of particular concern to the investigator is the lack of or limited amount of information about an arteriogram possessed by patients prior to their signing the consent form for the arteriogram, and prior to the procedure being performed. It is not unknown for patients who have not been adequately informed about the arteriogram to arrive in the X-ray room and be so frightened by the surgical type of set-up that they refuse to have the procedure performed at that time, and/or even

sign themselves out of the hospital. The time lost by the postponement of the arteriogram, which may provide valuable information to guide further treatment, could mean the difference between preservation and loss of a limb or internal organ, or even between life and death for a person with severe vascular disorders. A review of the literature revealed that few investigations have been conducted to identify what patients know or want to know about an arteriogram prior to its being performed, or to evaluate programs which provide information about the arteriogram to patients.

Purpose of the Study

The purpose of the study was to identify what information patients have and/or want to have about an arteriogram prior to the procedure being performed, and to evaluate the effectiveness of a prearteriogram teaching program in preparing the patient for the procedure by providing this information.

Significance of the Study

Patient education prior to diagnostic procedures is frequently overlooked by nurses and doctors. Identification of the information the patients have and/or want to have about an arteriogram prior to the procedure being performed can help to validate the need for patient education in this area. By identifying what patients themselves want to know about an arteriogram results of this study can help patient educators to develop teaching programs which meet the needs of patients who will be having arteriography performed. In addition, patient educators

can utilize the knowledge of what patients want to know prior to an arteriogram as a model for developing additional patient education programs to prepare patients for various other diagnostic procedures. Evaluation of the patient education program utilized in this study helped to determine its effectiveness in meeting patient needs, and results of the study may be used to support proposals to develop additional patient education programs related to preparation for diagnostic procedures.

Questions to be Answered

Since this study was exploratory in nature, no hypotheses were made. However, the study was directed toward providing answers to the following questions.

1. What information do patients have about an arteriogram prior to the procedure being performed?
2. What information do patients want to have about the arteriogram prior to undergoing the procedure?
3. How does information about the arteriogram presented to patients in a prearteriogram teaching program affect the concerns that patients have about the arteriogram?
4. From the patient's point of view is the information presented in a prearteriogram teaching program helpful in preparing them for the procedure?
5. What information about the arteriogram do patients recall learning from the prearteriogram teaching program?
6. What information about the arteriogram do patients who have undergone the procedure recommend be presented to future patients who are to have an arteriogram performed?

Operational Definitions

In this study the following operational definitions were used:

1. An arteriogram, as referred to in this study, was defined as a radiological procedure which involved the injection of a radiopaque dye into the vascular system in order to visualize on X-ray the vessels of the arterial system, except for the arteries of the cerebral vascular system.

2. The prearteriogram teaching program was an audio-visual patient education program which utilized a cassette tape recording and illustrative slides to present the following areas of information about the arteriogram to a patient prior to the procedure: what an arteriogram is; why the arteriogram is being done; where in the hospital the arteriogram will be done; what the room where the arteriogram will be done looks like; dietary restrictions prior to the arteriogram; special medication the patient will receive just before he goes for the arteriogram; who will do the arteriogram; the part of the body on which the arteriogram will be done; how the arteriogram is done; the type of anesthesia which will be used; the kind of equipment which will be used to do the arteriogram; how long the arteriogram will take to do; what the patient can do to help with the arteriogram; special positions the patient may have to be in during the arteriogram; feelings or sensations the patient may experience during the arteriogram; the kind of reactions which the patient could have to the contrast media (dye) used; and the kind of care the patient will be given after the arteriogram is completed.

3. Effectiveness of the prearteriogram teaching program was de-

fined by the patient's indication of how helpful the program was in preparing him for the arteriogram and by what information the patient indicated he learned in the slide program.

Assumptions

In this study it was assumed that the questionnaires were valid and reliable, that the subjects understood the directions for completing the questionnaires, and that they gave honest and complete answers to the questions. If the subjects asked no questions after viewing the audio-visual program, it was assumed that they understood the information presented in the prearteriogram teaching program.

Limitations

The major limitation of the study was the small sample size. It was hoped that the sample would include at least thirty subjects. However, the population size decreased during the study, perhaps as an indirect result of a change in the personnel performing the arteriograms (radiologists). The study was also limited by the fact that the sample was confined to one hospital, and that most of the subjects in the sample were greater than sixty years of age. Although the study did not control variables such as information given to the patient about arteriograms before he was seen by the investigator, the patient's previous experience with arteriograms, or the educational level of the patient, demographic data were collected on these items in order to determine if they did exert any influence on the results.

A few subjects had questions about completing the questionnaires.

Since the investigator answered these questions, this may have influenced the subjects' understanding of the instruments and thus their responses to them, as compared to subjects who asked no questions about the instruments and were assumed to understand the directions for completing them. Thus, the subjects' perceptions and interpretations of the questionnaires (whether or not they asked for clarification of them) may have been a limitation.

Following the presentation of the prearteriogram teaching program, the patient was given page three of the prearteriogram questionnaire on which he was to indicate which information he wanted to have clarified or additional information he desired. Generally patients did not write down their responses, but instead presented them orally to the investigator; thus, some of the responses were not recorded on the questionnaire. Occasionally, these responses were noted later on the questionnaire by the investigator, following the discussion with the patient. However, several responses may have been omitted as the investigator frequently became involved in responding to the patient's questions and failed to record the questions during or immediately after the discussion.

CHAPTER II

THEORY BASE

Many of the experiences occurring during hospitalization can be stressful to the patient. Some of the results of a study by Irving Janis provide a basis for explaining the behavior of patients experiencing psychological stress during hospitalization and for preparing patients for stressful experiences. Janis studied the behavior of surgical patients preoperatively and postoperatively, and found relationships between the amount of preoperative fear and the amount of preparatory information presented to the patient, and between the amount of preparatory information presented to the patient preoperatively and the occurrence of postoperative emotional disturbances. His findings revealed that "although preoperative information may bear little or no relationship to the occurrence of high anticipatory fear, it seems to make a sizeable difference as to whether a person will experience a moderate degree of anticipatory fear or practically none." (8:357) Postoperatively it was found that "the occurrence of acute emotional disturbances during exposure to stressful circumstances depends partly upon whether or not the person has been exposed to preparatory information beforehand." (8:358) Persons who had been given little or no preparatory information prior to surgery were more likely to experience acute emotional disturbances when exposed to stressful situations following surgery than persons who had been adequately informed prior to surgery. (8:358)

Janis believed that surgery could be viewed as a psychological stress situation in that the patient faced three major forms of imminent danger which were basic to physical danger situations: the possibility of 1) suffering acute pain, 2) undergoing serious body damage, and 3) dying. However, he felt that "the arousal of some degree of anticipatory fear may be one of the necessary conditions for developing inner defenses of the type that can function effectively when external dangers materialize," and found in his study that "lack of information seems to have been a major factor in determining the relative absence of anticipatory fear." (8:353) Persons with a moderate level of anticipatory fear were better able to cope with stressful situations postoperatively than persons with either a low or high level of anticipatory fear. Although the majority of patients with a high level of anticipatory fear were uninfluenced by preparatory communications, if the excessive fear was caused by misleading information or cognitive errors, corrective communications were sometimes helpful in lessening the person's anxiety level. (8:410)

Janis also believed that there is a "work of worrying" which "enables a person to adjust more adequately to a painful reality situation." (8:375) This "work of worrying" begins before the person faces the actual threat and "increases a person's level of tolerance for subsequent stress stimuli." (8:376) The goal of preparatory communications is to guide the patient's affective processes and thought sequences so that he can complete the "work of worrying" before he is exposed to the actual stress. (8:402) Preparatory information presented to persons with low anticipatory fear preoperatively may stimulate

them to develop a moderate degree of anticipatory fear. Once this anticipatory fear has been stimulated the person can no longer avoid thinking about what might happen to him and he begins to mentally rehearse the potential dangers of the situation, or to do the "work of worrying." "The more thorough the work of worrying, the more adequate the subsequent adjustment to any given type of danger or deprivation." (8:376) Thus Janis found that preparatory information presented to the patient prior to surgery stimulated the person to develop a moderate degree of anticipatory fear and to initiate the work of worrying, which if adequately completed helped the person to cope with subsequent stressful stimuli postoperatively.

Janis said, "In general, the "work of worrying" in surgical patients is facilitated by information which conveys a concrete picture of what the patient will himself perceive." (8:406) The "work of worrying" is facilitated when the person is given information regarding 1) the nature of the potential dangers, 2) how the dangers can be surmounted, and 3) the mitigating or protective features of the environment. (8:405) However, "the adequacy of the work of worrying may depend partly upon environmental conditions (e.g., exposure to information of the impending danger) and partly on personality predispositions (e.g., motivation to pay attention to warnings)." (8:377) Janis also found that "the communications designed for the psychological preparation of patients may be more effective if they include, along with statements about the major and minor unpleasant occurrences that are to be anticipated, a series of predictions concerning relatively neutral aspects of the daily con-

valescent routines." (8:406) If the person is given a detailed, factual account of the outstanding perceptual experiences which are most likely to occur, then there is less chance that the actual experiences will be traumatic to him. (8:383) However, Janis cautioned that "there is probably little or no gain from giving any technical information which is not essential for conveying a realistic picture of what the patient will actually perceive." (8:370) It was also found that giving too much information about the medical aspects of the patient's own case tended to increase the level of anticipatory fear to an ineffective level. (8:371)

Therefore, to promote effective "work of worrying" the goals of preparatory communication should be: 1) to give the patient as complete a cognitive framework as possible for appraising the potentially frightening and disturbing perceptions that he might actually experience, 2) to stimulate a realistic mental rehearsal of the anticipated danger situation (work of worrying), 3) to correct erroneous beliefs and anticipations which may be the basis for exaggerated fears or expectations, and 4) to facilitate the development of reassuring concepts which will continue to function when the actual danger is experienced (e.g., recommendations which help the patient build up a sense of active control by informing him about actions he can execute and about decisions that will be left up to him during the stressful situation). (8:368, 374, 384)

Although Janis' study validated the importance of preparatory communication in preparing a person psychologically for a stressful experience, it also pointed out that it was important for the patient to discuss his reactions to the preparatory communications with someone. (8:382) Janis emphasized, "The give-and-take verbal interaction between

the person being prepared and the one doing the preparing is probably an essential condition for overcoming emotional resistances and for meeting the specific emotional needs which often determine the way in which information about an anticipated danger situation is perceived and assimilated." (8:374) Thus Janis' theory of psychological stress provides guidelines for preparing patients for other stressful events of hospitalization, such as the arteriogram, and can help determine what kind of information to present to patients to prepare them psychologically for these events.

CHAPTER III

REVIEW OF THE LITERATURE

A review of the literature revealed some studies which identified general areas of information which patients desired, but there were few studies which identified what patients wanted to know about diagnostic tests, particularly arteriograms. A single study (Alfidi) was found which evaluated the effect of information about the risks of an arteriogram which was given to patients before they signed to give consent for the procedure to be performed.

Volicer asked 47 patients on cancer, surgical, and medical wards to rate 45 stress-producing events related to hospitalization in terms of the relative amount of adaptation required to cope with each event. A rank of one indicated the most stressful event, while a rank of 45 indicated the least stressful event. Knowledge or lack of knowledge about diagnostic tests was not included in the events to be ranked. However, other related events and their rankings included: inadequate explanation of diagnosis (9), inadequate explanation of treatment (13), anticipated pain or discomfort as a result of treatment (19), admission for diagnostic tests only (26), presence of unfamiliar machines or mechanical devices (38), and extensive medical knowledge (43). (20:237) Inadequate explanation of diagnosis and treatment was rated as being fairly high as a stress-producing event, while extensive medical knowledge was rated low, thus supporting the belief that knowledge of the situation is less stress-producing.

After revising the stress rating scale utilized in the previously

described study, Volicer and Bohannon conducted a similar study in which 261 medical and surgical patients in a community hospital were asked to rank order 49 events related to the experience of hospitalization from the most to least stressful. A rank of one indicated the least stressful event, while a rank of 49 indicated the most stressful event. Events ranked one to 24 were considered by the investigators to be low stress events, and events ranked 25 to 49 were considered to be high stress events. The study revealed that several events which were rated as high stress events included items which "concerned the perception of a lack of information about one's condition." (19:357) The events which fell into this category and their rankings included: not having your questions answered by the staff (37), not knowing the results or reasons for your treatments (41), not knowing for sure what illness you have (43), and not being told what your diagnosis is (44). (19:358) Also of interest were the rankings of the following events: thinking you might have pain because of surgery or test procedures (19), and not knowing when to expect things will be done to you (25). These investigators concluded that "some aspects of the experience of hospitalization which are perceived as very stressful by patients are related to a lack of communication of information or lack of communication in a meaningful way, on the part of the hospital staff." (19:358) Although the stress rating scale did not include events related to undergoing diagnostic tests (other than the item ranked 19), the results of this study suggest that patients desire information about what is happening to them during their hospitalization.

Linehan conducted a study of patients in a 250-bed hospital to answer the question "What do patients want to know about their illnesses before they leave the hospital?" Over an eight-month period the investigator interviewed 443 patients prior to their discharge from the hospital. The questions asked by patients fell into the following categories, listed in order according to the volume of questions in each category: activity, diagnosis, reasons why they did not ask questions, symptoms, suggestions, treatments, prognosis, medicines, operations, personal care, diet, problems, nursing care and nurses, miscellaneous, finances, marital relations, and tests. (14:1068) The study revealed that patients desired simple answers to their questions, and the use of fewer medical terms. "They wanted more explanation of what was done to them and why; what to expect after an operation or treatment; more rapid reports of tests; better communication between doctors and families; more explanation of nursing procedures." (14:1068) It was especially interesting to note that in the study 51 percent of the patients indicated that they had no questions. The investigator assumed that this was because of "fear, age, religion, trust in the physician, knowing their diagnosis or, not knowing what to ask, how to ask, or whom to ask." (14:1068) This could suggest that patients often have information needs which they are unable to express. By presenting information she feels may be helpful to the patient, perhaps the nurse could stimulate the patient to ask further questions and fulfill these unmet needs for information.

Dodge collected data on the attitudes of patients, nurses, and doctors toward selected aspects of staff-patient communication in a study

to determine the nature and extent of differences among these three groups in their attitudes toward the importance of keeping patients informed. The sample included 93 patients, 136 nurses, and 82 doctors in one hospital, and 115 patients, 138 nurses, and 24 doctors in a second hospital. The subjects were asked to rate the importance of giving information about aspects of the patient's case, symptoms, and treatment. In both hospitals "the only information that doctors believed at all important for nurses to give to patients was an explanation of what they were doing when caring for the patient concerned." (6:74) There was a significant tendency for doctors to underestimate patients' information needs. In the first hospital there were negligible differences between the attitudes of nurses and patients regarding the nurses' communication of information to the patient. The only significant difference was that nurses believed it was more important than did the patients to explain what they were doing when caring for the patient. In the second hospital nurses also felt it more important to explain care given and new treatments than did the patients. In fact, at the second hospital "patients felt certain aspects of nurse-patient communication to be more important than either their doctors or nurses did." (6:74) Overall the patients consistently attributed more importance to receiving information than did the doctors. (6:74) Thus, the results of this study suggest that patients do not always receive the information that they want, and that health care providers need to identify what information patients do desire.

Dodge's study of 116 hospitalized patients was conducted to learn the kinds of information patients felt they should be given and the

importance they placed on this information. The study also examined the nature and extent of the influence of sex, education, age, and nature and term of involvement on the patients' perceptions of their cognitive needs. Areas of information about which patients showed great concern included diagnosis, results of diagnostic tests, and etiology of their conditions. They expressed moderate concern about the cause of specific symptoms, long and short-term effects of the illness on their futures, chances of recurrence of the illness, probability of resuming normal daily activities, restrictions on daily activities, total time involved before being discharged, kind of care that was or would be needed, the purpose of this care, and the things that they could do (self care) to speed their recovery. (5:505-507) Receipt of information about diagnostic procedures (what they were going to do) was ranked as moderately important. The only variable significantly related to total information needs was education. (5:507) However, there were notable differences related to nature and term of involvement, age, sex, and education. The total number of expressed desires for information increased with increased education. Overall data supported the belief that "patients' cognitive needs are influenced by personal characteristics which dictate the kinds of situations they face in their daily lives." (5:511) Thus, by identifying areas of information which are important to patients, Dodge also identified areas in which patient education could be helpful.

In another study Dodge collected data from 139 patients and 62 nurses in order to explore the extent to which patients and nurses agree

on the kind of information patients needed. Nurses and patients placed high importance on patients being informed about what is wrong with them, how long the illness is likely to involve them, and how they can participate in their care while hospitalized. Information about what symptoms to expect and what kind of care would be needed was considered important. Knowledge of certain specific details of what to expect was rated as moderately important, while information about cost of care was considered of little importance by both nurses and patients. (7:1852)

Patients showed more concern about knowing how serious their situations were (i.e., chances of recovery and recurrence, results of operations and diagnostic work, complexity of their cases), knowing causes of their conditions and symptoms, names and effects of their medications, various surgical procedures which had been performed, and amount of costs covered by insurance. (7:1854) Nurses, however, felt that it was more important for patients to have a good understanding of what to expect regarding their care, what to expect during tests and X-rays and after surgery, what hospital routines and policies were, and activity restrictions and other modifications in living that would be necessary after the patient left the hospital. (7:1854)

In relation to diagnostic tests, what to expect during tests or X-rays was ranked twelfth in importance by nurses and 26.5 by patients. Knowledge about preparation needed for tests was ranked 14.5 in importance by nurses and 53 by patients. Information about what would be done during the tests or X-rays was ranked 25 by nurses and 42 by patients. (7:1853) Differences could be partially attributed to the fact that perhaps the

information that patients saw as important was information they had not yet received, or that patients responded to the questions in the study in terms of what they wanted to know, while nurses responded according to what they felt was generally important for patients to know. (7:1854)

In a study conducted by Johnson, it was hypothesized that "discrepancy between expectations about sensations and experience during a threatening event results in distress," (9:499) and that "accurate expectations about the physical sensations a subject is to experience will reduce distress during the confrontation with a threatening event." (9:500) Thus, she conducted both a laboratory and a clinical study to "test the notion that descriptions of sensations frequently experienced were more effective in reducing distress than detailed descriptions of procedures." (9:500)

In the laboratory experiment the threatening event to which subjects were exposed was ischemic pain produced by an inflated blood pressure cuff applied to the upper arm. The subjects were 48 male college students. Half of the subjects were told what sensations they would feel and what they would see (pressure, tingling, aching, numbness, and blueness of the fingernails), while the remainder of the subjects were only informed of the procedure of applying the cuff and inflating it. (9:500) Subjects who had been given a description of the sensations to expect reported that they "had expected more of the sensations they experienced than those who heard a description of the procedure." (9:501) These same sub-

jects also reported "significantly less distress while the cuff was inflated than those who were given a description of the procedure." (9:501) Thus, in the laboratory experiment the investigator concluded that "preparatory information about sensations frequently experienced has its effect on distress only when there is a combination of accurate expectations and experience," and also that "distress during a threatening event is reduced when the subject has accurate expectations about physical sensations to be experienced." (9:501)

The sample on the clinical study included 99 patients (hospitalized and out-patients) who were scheduled for a gastrointestinal endoscopy examination. The subjects were divided into three groups. One group received preparatory information describing the sensations patients frequently experience during this type of examination. A second group was presented preparatory information which described only the procedure which was followed during the endoscopy examination. The preparatory information was presented via a recorded message accompanied by illustrative photographs. The third group received no experimental information prior to the examination. (9:501)

Results of the clinical study revealed that both messages appeared to reduce anticipatory distress, and that patients who were informed about the sensations they might experience displayed fewer indications of tension during the passage of the tube than either of the other two groups. Patients who received a description of the procedure were most restless during the examination, while patients who were informed about sensations were least restless. (9:502) Thus, the clinical study also supported the hypothesis that preparatory information about the sensations frequently experienced during a threatening event lowers distress. It

was concluded that preparatory information about sensations to be experienced was more effective than information about the procedure to be followed. (9:502) Thus, it would seem important for nurses to inform patients about sensations which they may experience when presenting preparatory information prior to treatments or procedures.

A later study was conducted by Johnson and Rice to test the hypothesis that "the intensity of the reactive component of the pain experience is a function of the congruency between expected and experienced sensations." (10:204) This hypothesis was based on the suggestion "that preparatory information which accurately describes sensations frequently experienced during a painful event allows the subject to form accurate expectations about the sensations. These accurate expectations increase the congruency between expected and experienced sensations and reduce the distress reactions." (10:204) The hypothesis was tested in an experiment in which 52 male college students experienced ischemic pain in their arms. The subjects were divided into four groups, each of which was presented with different information via a tape recording prior to the pain experience. The first group was given a description of sensations which were unlikely to occur with ischemic pain; the second group was given a description of only two of the sensations the subjects could expect to experience; the third group was presented with a description of all the typical sensations experienced; and the fourth group heard a description of the procedure, which did not include a description of sensations. (10:205) During the experiment the subjects were asked to rate the intensity and distress of the sensations they experienced. Results of the study showed that information which

provided a partial description of sensations to be experienced was as effective at reducing distress from ischemic pain as was information which fully described typical sensations. (10:208) This suggests that "in clinical settings, patients who receive a partial description of sensations they may experience will have as much reduction in distress as those who receive a complete description of sensations they may experience." (10:203)

Although Sister Patricia Kelly did not study what nurses should tell the patient about diagnostic tests, she did express her opinion on the subject:

> I am biased in favor of telling them everything that common sense, courtesy, and discretion dictate. After all, they are the ones who are submitting to the tests and who will have to take preventive or curative measures to alleviate their ailments. A simple explanation of test procedures can often dispel needless anxiety, confusion, and embarrassment. (12:15)

She felt that because many health care personnel are familiar with routine diagnostic tests, they often fail to explain the tests to patients who are unfamiliar with them. What to tell the patient about his diagnostic tests will depend upon "the previous association of the person with hospitals and his contact with illness." (12:16) However, Sister Kelly suggested that the nurse caring for patients undergoing diagnostic tests should at least explain the purpose of the test and the procedure involved, as well as the risks of the test. She also advised nurses to inform the patient of the names of the persons who will be performing the test, and to refer to the test by its name, not by its initials. (12:16)

Dlouhy, and others, studied 96 medical-surgical patients to determine what patients wanted to know about their diagnostic tests. A pilot study of 18 patients revealed ten areas in which patients wanted knowledge about diagnostic tests: 1) reason for the test, 2) when the test would be given, 3) the testing equipment, 4) the procedure, 5) the tester's attitude, 6) the tester's skill, 7) the time needed to do the test, 8) the patient's pain or discomfort, 9) emotional factors, and 10) the results of the test. (4:265-266) Results of the study showed that a major concern of the patients was what the results of the test would mean in terms of their treatment and prognosis. The patients' next greatest concerns were what the actual results of the test were, the reason for the test, and when they would learn the results of the test. Results of the study implied that the patient wanted to know not only why a test was to be done, but also how it was to be done, how equipment used in the test would affect him, on what part of the body the test would be done, and what they could do to help with the tests (i.e., exactly what was expected of them). (4:267) Results of this study can be helpful to the practitioner in that if she knows what patients want to know about their diagnostic tests, she can better prepare patients for these tests by providing this information to them.

Nebe and Gavaghan's study of 23 patients who had undergone lymphography was conducted in order to identify what information they had received prior to lymphography, from whom they had received the information, and what information they thought future patients should receive prior to this radiological procedure. (15:1368) The data collected revealed

that these patients recommended that future patients undergoing lymphography should be given information about the following: the reason for the test; the use of local anesthesia; the possibility of pain; the part of the body involved; the equipment and the environment; the length of time involved; the possibility of reaction to contrast media; temperature elevation, and bluish discoloration of the skin and urine; what cooperation is expected of them; and postprocedural care which would be given. (15:1368) Results of this study could be adapted to prepare patients undergoing any radiological procedure which involves the injection of a dye.

Allen conducted a study to determine what information patients undergoing three neuroradiological procedures (cerebral angiography, pneumoencephalography, and myelography) viewed as being most helpful in preparing them for these procedures. The sample included four patients who underwent pneumoencephalography, eight patients who had lumbar or cervical myelography, and 13 patients who had cerebral angiography (total sample = 25). Of the 13 patients who underwent cerebral angiography the number of patients who had been given information about this procedure was as follows: presedation (1); reason for the test (10); local anesthesia (6); pain (4); part of body involved (7); reaction to contrast media (9); cooperation expected (2); time involved (3); environment and equipment (position) (1); NPO (0); emotional factors (0); meaning of results in terms of future (0); and postprocedure routine (0). The number of patients in this group who projected a desire for each particular item of information was as follows: presedation (13); reason for

the test (13); local anesthesia (11); pain (10); part of the body involved (13); reaction to contrast media (10); cooperation expected (12); time involved (10); environment and equipment (position) (12); NPO (4); emotional factors (4); meaning of results in terms of future (3); and postprocedure routine (8). (2:209) Thus, it can be seen that the majority of the patients undergoing cerebral angiography desired information about ten of the 13 items. Results of the data collected from the total sample of 25 indicated that the items these patients thought were most pertinent to discuss with future patients undergoing these three procedures were: presedation, reason for the test, use of local anesthesia, amount of pain they might be expected to experience, part of the body involved, length of time involved, reaction to contrast medium, cooperation they would be expected to give during the test, equipment used and position they would assume during the test, and routine postprocedure care. (2:210-211) Results of this study could serve as guidelines for determining what kinds of information to present to patients who will be undergoing similar radiological procedures involving the injection of a dye.

A study by Alfidi was conducted to "determine the reactions of patients to a general disclosure of complications which might result from angiographic procedures." (1:1325) Prior to the study Alfidi expected that disclosure of this information to patients would cause them to refuse angiography. Information was presented to patients on the consent form which they were required to sign before the procedure could be performed. No explanation was given until after the patients read and completed the form which included questions about the patient's reactions to

the information about possible complications of the procedure. The form was presented to the patients anywhere from the night or day before the arteriogram to one hour before the arteriogram. (1:1325) Of the 232 patients included in the sample, only four refused to consent to have angiography performed after receiving information about possible complications of the procedure. Eighty-four percent appreciated receiving the information and found it useful. Approximately 31 percent of the patients were disturbed by the information, yet consented to the procedure. (1:1328) Thus, the results implied that the majority of patients undergoing arteriography desire information about possible complications of the procedure, and this information does not necessarily cause them to refuse to undergo the procedure.

As an audio-visual program was utilized in this study, two additional studies which evaluated the effectiveness of audio-visual programs in patient education were reviewed. A study by Lawson, and others, was designed "to develop, test, and assess the efficacy of an audio-tutorial program for improving the dietary adherence of patients with chronic renal failure, particularly the educationally disadvantaged." (13:390) The 16 subjects in the sample were randomly selected from 30 patients receiving maintenance hemodialysis in the institution utilized for the study. The sample was divided into two groups: Group A included those with less than tenth grade education, and Group B included those with tenth grade education or better. The investigators did not indicate how many subjects were in each group. (13:391) Prior to viewing the audio-tutorial program each patient was assessed to determine the

information he had about his diet. Then videotape cassettes were utilized to present information to the patient regarding his special renal diet. Posttest data were collected one month after the patient viewed the videotapes, and included both recall of information about the diet, and record of actual dietary intake. (13:391-392) Results of the study indicated that both groups of patients "acquired a significant amount of knowledge concerning their individual dietary prescriptions," and that "some positive behavioral changes in dietary adherence were apparent." (13:395) Thus, the investigators concluded that "the audio-tutorial program was a successful technique for teaching information." (13:395)

The value of a sound-slide program in patient education was studied by Sly. Asthmatic children who had been referred to a pediatric allergy clinic were assigned alternately to experimental and control groups. However, the 32 subjects of the study appeared to be the mothers of these children, rather than the children themselves. Information was presented to the mothers about the general nature, etiology, pathogenesis, and treatment of allergic asthma, as well as presentation of recommendations and precautions for minimizing exposure to household inhalent allergens. This information was presented to the experimental group in a cassette tape-slide program, while the control group received this information verbally from the investigator. (18:94-95) "Mothers completed identical questionnaires to test their knowledge and understanding of the information included in the program immediately before and after presentation of the instructions and again six weeks later when the homes were visited and rated for compliance with the recommenda-

tions." (18:95) In addition to the basic information and recommendations, both groups of mothers received further instruction about other aspects of each individual child's treatment directly from a physician, and also received printed instructions which reemphasized precautions to minimize exposure to household inhalent allergens. Results of the study indicated that there was no significant difference in the effect of the method of instruction upon test scores or upon compliance with instructions. (18:96) Since the sound-slide program was found to be as effective as personal instruction, the investigator advocated the use of a sound-slide program, supplemented by additional specific instructions, as a convenient method for presenting information to patients about allergy and precautions to be taken. (18:96)

In summary, a review of the literature appeared to support the belief that patients desired information about their care. The literature also supported the idea that providing information about diagnostic tests, treatment, and/or nursing care could be helpful in assisting the patient to gain a better expectation of what he might experience during his hospitalization.

CHAPTER IV

METHODOLOGY

Results of Previous Clinical Investigations and Pilot Study

Two clinical investigations and a pilot study were conducted prior to the final study. In the Fall of 1975, a clinical investigation of ten subjects was conducted within the first forty-eight hours after admission to determine what patients wanted to know about the hospital and its routines, and about their illness, condition, treatment, and care. The investigation revealed that one of the areas in which the patients had the most questions was that of diagnostic tests which had been performed or were about to be performed. This investigation supported the belief that patients desired information about their diagnostic tests.

A second clinical investigation was conducted in the Spring of 1976 to determine what patients who were scheduled for an arteriogram knew about the test before it was performed, what they wanted to know about the arteriogram, and what they recommended future patients be told about the procedure. In this investigation the procedure for the study and the instruments for collecting data were developed. Information about the arteriogram was presented orally to seven subjects by the investigator. The information presented included all of the seventeen items on the pre-arteriogram checklist. Results of the investigation revealed that patients usually had little or no information about the arteriogram but desired this information and recommended that future patients scheduled for arteriograms be given this information. Therefore, this investigation justified initiating a standardized teaching program which utilized audio-visual equipment.

In addition, the questionnaires were reorganized and refined following this investigation.

During the Summer of 1976, the audio-visual prearteriogram teaching program was developed. The audio-visual presentation (cassette tape recording with slides) was developed in order to provide a consistent and standardized means of providing information about the arteriogram to patients who were to have this procedure performed. The results of studies by Allen, Nebe, and Dlouhy were helpful to the investigator in determining what information to include in the prearteriogram teaching program. (2:206-213; 15:1366-1368; 4:265-267) Suggestions which came from Janis' theory of psychological stress regarding the kinds of information to present to patients to stimulate the "work of worrying" and the manner in which to present it were also considered in developing this audio-visual patient education program. (8:368-406) The content in the prearteriogram teaching program covered all of the items listed on the pre and postarteriogram checklists. (See Appendix A for an outline of the prearteriogram teaching program)

A pilot study was conducted during the Fall of 1976 to pretest the revised questionnaires and also to utilize the audio-visual presentation to provide information about the arteriogram. Results of the pilot study were similar to the second clinical investigation with the five subjects indicating that they had little or no information about the arteriogram prior to the procedure being performed, but desiring to have this information and recommending that it be given to future patients. The audio-visual teaching program appeared to be an effective means of providing information to the patients. Following the pilot study, the only changes

made to the questionnaires were to add a couple of items and to reword some of the category headings on the postarteriogram questionnaire checklist.

In summary, during the two previous clinical investigations and the pilot study, justification for conducting the study was demonstrated, and the sample criteria, procedure, questionnaires, and teaching program were developed, refined, and tested. The final study was conducted utilizing the sample criteria, instruments, and procedure described in the following pages.

Sample

For the final study a convenience sample of 18 adult patients was selected from a population of adults who were hospitalized in a 500-bed, acute-care, general hospital in a metropolitan area of the Midwest, and who were scheduled to have an arteriogram performed. Of the 18 patients selected, only nine met all of the criteria for eligibility for the study. Therefore, the final sample consisted of nine subjects. The criteria for eligibility for the study were:

1. EIGHTEEN YEARS OF AGE OR OLDER (generally considered to be the definition of an adult). The study was confined to adults as it was felt that they would have a more mature ability to receive and understand information about the arteriogram. As adult consumers of health care it was thought that they might also show more concern about the arteriogram, and thus seek more information about this procedure.

2. CURRENTLY ADMITTED TO THE HOSPITAL AS AN IN-PATIENT. Patients were to be in-patients as the study was confined to this population. Also, it was felt that postarteriogram follow-up would be more successful and easier to complete when the patients in the study were in a central location, such as the hospital setting.

3. ARTERIOGRAM (EXCLUDING CEREBRAL ARTERIOGRAMS) ORDERED BY THE ATTENDING PHYSICIAN. Patients scheduled for cerebral arteriograms were excluded from this study because in this institution cerebral arteriograms were performed by the neurosurgeons, not the radiologists, and consent of the neurosurgeons was not obtained. Also, it was questionable as to whether patients undergoing

cerebral angiography would meet the criteria for physical stability or mental alertness. In addition, the prearteriogram teaching program did not include information which would be specific to a cerebral arteriogram.

4. PHYSICALLY STABLE. Physical stability was determined by staff nurses responsible for the patient's care, by progress notes and/or consultation with the attending physician, and by the investigator's own assessment of the patient. Patients were to be physically stable so that they could complete the questionnaires and view the teaching program. If there was any question about the patient's physical stability, the patient was excluded from the study.

5. MENTALLY ALERT (awake and oriented to time, person, and place). Patients were to be mentally alert so that their answers to the questionnaires would be valid. Mental alertness was determined in the same manner as physical stability.

6. ABLE TO UNDERSTAND AND FOLLOW VERBAL AND WRITTEN INSTRUCTIONS. This ability was determined in the same manner as physical stability. The patient should have had this ability so that responses to the questionnaires would be valid and so that the patient could benefit from the teaching program.

7. LITERATE (able to speak, and read or understand English). Patients were to have been literate so that they could understand the teaching program and could complete the questionnaires. Literacy was determined in the same manner as physical ability.

8. ADEQUATE HEARING (able to hear spoken words clearly). This was determined in the same manner as physical stability. Adequate hearing was necessary so that the patient could clearly hear the teaching program, and also could hear the investigator if the patient was unable to see to read and the questionnaire had to be read to him.

9. ADEQUATE VISION (able to see the slide pictures clearly). This was determined in the same manner as physical stability. The patient was to have adequate vision so that he could see the visual portion of the audio-visual teaching program. A patient was not excluded from the study if he could not see to read the questionnaire, provided all other criteria were met.

10. ABLE TO COMPLETE THE DEMOGRAPHIC DATA AND THE PREARTERIOGRAM QUESTIONNAIRE BEFORE VIEWING THE AUDIO-VISUAL TEACHING PROGRAM, AND BEFORE THE ARTERIOGRAM WAS DONE. This was necessary in order to obtain valid responses to the prearteriogram questionnaire.

11. ABLE TO VIEW THE AUDIO-VISUAL TEACHING PROGRAM BEFORE THE ARTERIOGRAM WAS PERFORMED. This was necessary in order to obtain valid responses to the postarteriogram questionnaire and to evaluate the teaching program.

12. ABLE TO COMPLETE THE POSTARTERIOGRAM QUESTIONNAIRE WITHIN FORTY-EIGHT HOURS OF THE COMPLETION OF THE PROCEDURE. A previous clinical investigation revealed that patients were usually still under the influence of preprocedural medications or analgesics during the first twelve to eighteen hours following the arteriogram. Generally responses were found to be more valid approximately eighteen to forty-eight hours after the completion of the procedure. It was desirable to obtain responses within this time period while the patient still had good recollection of his experience with the arteriogram. Allen also found in her study that it was advisable to wait at least twelve hours following the procedure to collect data from the patient. (2:208)

13. NOT SCHEDULED FOR SURGERY (TO CORRECT A PROBLEM IDENTIFIED ON THE ARTERIOGRAM) WITHIN TWENTY-FOUR HOURS OF THE COMPLETION OF THE ARTERIOGRAM. It was felt that the stress of impending surgery might alter responses to the questionnaire, and also that the patient should not be expected to participate in a study when his major concern is "sudden" surgery.

It was preferable that patients had not signed the consent form for the arteriogram prior to completing the prearteriogram questionnaire, since the consent form contained information which might alter the responses to the questionnaire. None of the patients in the sample had signed the consent form at the time they were contacted by the investigator. However, if a patient had signed the consent form, he would still have been eligible for the study if all other criteria were met.

Instruments

Two instruments were used to collect data. (See Appendix C for sample questionnaires) The items on the prearteriogram and postarteriogram checklists were compiled from the results of studies by Allen, Nebe, and Dlouhy, who identified information desired by patients undergoing diagnostic tests, including two radiological procedures which involved the injection of a dye. (2:206-213; 15:1366-1368; 4:265-267) The study by Alfidi was

helpful in developing questions for evaluating the teaching program. (1:1325-1329)

Subjects completed one of the questionnaires before they saw the prearteriogram teaching program (except for page three of the prearteriogram questionnaire), and before the arteriogram was performed. Page three of the prearteriogram questionnaire was completed after the subject had viewed the prearteriogram teaching program. The purpose of the prearteriogram questionnaire was to identify what the patient already knew about the procedure, as well as what information he did or did not want to know about the arteriogram. The prearteriogram questionnaire also sought to determine how the subject felt about having the arteriogram done both before he was given information about the procedure and after he saw the prearteriogram teaching program.

The second questionnaire was completed by the subjects within forty-eight hours of the completion of the arteriogram. The purpose of the postarteriogram questionnaire was to determine how the subjects felt about having the procedure performed, both before and during the arteriogram, and to identify some of the concerns the subjects might have had during these two periods. In addition the postarteriogram questionnaire sought to determine whether the information in the teaching program was helpful in preparing the patient for the arteriogram and also to validate the effectiveness of the teaching program.

Should this study be replicated the investigator would consider a few modifications on the questionnaires for the purposes of further clarifying the questionnaire and of obtaining more specific data. On Item 7 of the Background Information page the subject might also be asked

to describe what he has been told about the test if he has checked "Yes" to the question. The prearteriogram checklist could be used as it was in this study, or the 17 items could be developed into open-ended questions or a multiple-choice "pretest" to be completed by the subjects prior to receiving information about the arteriogram. The checklist categories might also be set up so that the subjects indicate the degree to which they desire the information. For example, instead of just checking the category "would like to know this", the subjects might be asked to check whether the particular item of information is one which they feel is essential to know, would be nice to know, or perhaps they do not care if they know it, or it is not important to know. Items 20 and 21 on page three of the prearteriogram checklist might best be completed by an independent observer of the discussion which follows the presentation of information about the arteriogram. This is recommended as the investigator frequently becomes too involved in the discussion to record the information requested in Items 20 and 21. Another alternative to having an independent observer might be to tape record the discussion and analyze it later for the information sought by Items 20 and 21.

On the postarteriogram checklist the category "already knew before seeing the slide program" might be added to the choices. To validate which information was learned from the slide program, the 17 items of information could be listed with only the category "learned in slide program" and this checklist could be presented to the subjects immediately after viewing the slide presentation. Then the postarteriogram checklist as it was used in this study could be presented after the arteriogram was

performed to "double-check" the responses given immediately after receiving the information about the arteriogram. The 17 items might also be developed into an open-ended questionnaire or multiple-choice "posttest" to identify the information the subjects recalled. This instrument might also be used both immediately after receiving the information about the arteriogram and after the procedure had been performed. As was suggested for the prearteriogram checklist, the categories for the postarteriogram checklist might be set up so that the subjects can indicate the importance of each particular item of information in preparing future patients for this procedure.

Procedure

The following procedure was followed by the investigator in conducting this study:

1. Obtained permission from the director of nursing services to conduct the study in the hospital and to contact patients.

2. Obtained permission from the radiologists who perform the arteriograms (excluding cerebral arteriograms) in the hospital to conduct the study and contact patients.

3. Called the X-ray Department daily to obtain a list of patients scheduled for arteriograms (excluding cerebral arteriograms) the next day.

4. Utilizing the sample criteria, selected the sample from the list obtained from X-ray.

5. Contacted the patient prior to the arteriogram, usually the evening before the procedure and prior to the consent form (to perform the arteriogram) being signed. At this time, the investigator further validated the patient's eligibility for remaining in the sample.

6. Obtained the patient's written consent to participate in the study.

7. Had the patient complete pages one and two of the prearteriogram questionnaire and the demographic data.

8. Presented the prearteriogram teaching program (a cassette tape recording with accompanying slides which took about 15 minutes to view). If the patient indicated that he did not want to have this information, it was not presented to him and he was excluded from the sample. The patient was provided with a pencil and a piece of paper so that he could write down any questions that he thought of while viewing the audio-visual program.

9. Following the presentation of the prearteriogram teaching program, had the patient complete page three of the prearteriogram questionnaire and gave the patient the opportunity to ask questions. If possible, the investigator answered the patient's questions. When the investigator did not know the answers to the patient's questions, these questions were referred to personnel who would know the answers and could provide them to the patient before he signed the consent form. Occasionally, the investigator was able to contact a reliable source for the answers to a patient's questions, and then report back to the patient directly.

10. Contacted the patient within 48 hours (usually around 18 to 24 hours) of the completion of the arteriogram and re-evaluated him to determine if he was still eligible to continue in the study. The patient should have been recovered from the preprocedural medication, and not have been scheduled for surgery (to correct a problem identified on the arteriogram) within 24 hours after the completion of the arteriogram.

11. Had the patient complete the postarteriogram questionnaire, and thanked him for his cooperation in the study.

Part II

AN EVALUATION OF THE EFFECTIVENESS OF A PREARTERIOGRAM TEACHING PROGRAM: AN EXPLORATORY STUDY

BY

CLAUDIA DILLE JOHNSON

A Nursing Study

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CHAPTER V

ANALYSIS OF THE DATA AND DISCUSSION OF RESULTS

A tabulation of the raw data obtained from the instruments is included in the Appendix. The results of the tabulation are discussed in this chapter.

Demographic Data

The final sample in the study included six males and three females ranging in age from 43 years to 72 years. The average age of the subjects was 61.6 years with three subjects being younger than the average age and six subjects being older than the average age. Three of the subjects had completed less than a high school education, while five subjects had completed high school. Only one subject indicated that she had more than a high school education. None of the subjects were employed in an occupation related to the health-care field.

Six of the subjects stated that they had been hospitalized because of circulatory insufficiency, particularly in the lower extremities. The seventh subject indicated that her problem was related to "blockage in arteries in throat." The eighth subject listed the cause of his hospitalization as "hypertension," while the ninth subject said he was hospitalized because he was "urinating blood." Seven of the subjects indicated that they had never had an arteriogram performed before; however, it should be noted that one of the subjects who responded to this option did admit that she had had a cardiac catheterization performed in June of 1977. The remaining two subjects had an arteriogram performed during previous hospitalizations.

Four subjects responded "No" when asked if anyone had told them about the arteriogram. Of the five subjects who said they had been given information about the arteriogram, four received information from a physician, one from a nurse, one from X-ray personnel, and two from relatives. However, analysis of the data obtained from the prearteriogram checklist showed that the most information these subjects indicated that they knew before viewing the slide-tape program was "what an arteriogram is," and "why the arteriogram is being done." Prior to viewing the audio-visual program about the arteriogram, none of the subjects had signed the consent form authorizing the radiologist to perform the procedure; therefore, none of the subjects had obtained information from reading the consent form.

Results of Prearteriogram Questionnaire

An analysis of the responses to the prearteriogram questionnaire revealed that the most information subjects knew prior to viewing the prearteriogram teaching program was what an arteriogram was and why the procedure was being performed. Six subjects checked that they knew what an arteriogram was. Of these six subjects two had had previous arteriograms performed, and three said they had been given some information about the arteriogram. The sixth subject who indicated that he knew what an arteriogram was had previously checked that no one had given him any information about the procedure. Of the three subjects who checked that they would like to know what an arteriogram was, one had previously indicated that he had been given some information about the procedure, and one had previously had a cardiac catheterization performed.

Among the eight subjects who indicated that they knew why the arteriogram was being performed, two subjects had had previous arteriograms performed, three had been given some information about the procedure, and three had previously indicated that no one had given them any information about the arteriogram. The one subject who checked that he would like to know why the arteriogram was being performed had previously indicated that he had been given information about the test by X-ray personnel; however, the only information given to him was the day and time when the test was scheduled.

There were six items on the prearteriogram questionnaire which none of the subjects knew but indicated that they would like to know. These items were "who will do the arteriogram," "whether or not anesthesia will be used," "how long the arteriogram will take to do," "what I can do to help with the arteriogram," "the kind of reactions which I could have to the contrast media (dye) used," and "what kind of care I will be given after the arteriogram is finished." The investigator speculated that these items may not have been checked by persons who had previously had an arteriogram performed due to several reasons. The subjects may not have recalled the information due to the amount of time elapsed since the previous arteriogram, or because they were selectively attentive to some of the events associated with the arteriogram and not to other events. In addition, they may not have actually observed parts of the arteriogram procedure (e.g., administration of the local anesthetic), or they may not have been provided with some of this information prior to the previous arteriogram (e.g., possible reactions to the dye).

Of interest were the items which were checked under "already know

this" by subjects who had previously had an arteriogram performed and subjects who said they had been told about the test. Subjects #2 and #8 had previously had an arteriogram performed. Subject #2 indicated that she already knew Items 1, 2, 6, 14, and 15 prior to viewing the prearteriogram teaching program. Subject #8, who had had an arteriogram performed four years ago, also indicated that he had been told about the arteriogram by his physician. This subject checked that he already knew Items 1, 2, 3, 4, 8, 9, 14, and 15. Although Subject # 1 said he had been told about the arteriogram by his brother and his physician, the only items he checked that he already knew were Items 1 and 2. Subject #6, who said he had received his information from X-ray personnel, indicated the only item he already knew was Item 1. Items 1, 2, 5, 8, 9, and 11 were checked as already known by Subject #7, who said he had received information about the arteriogram from his son-in-law and his physician. Although a physician and a nurse had told Subject #9 about the arteriogram, the only items he indicated that he knew were Items 2, 5, and 8.

The majority of the subjects desired information about all of the items on the prearteriogram questionnaire with the exception of Items 1 and 2. None of the subjects indicated that they did not want information about any of the items.

The investigator had some difficulty recording responses to Items 20 and 21 on the prearteriogram questionnaire, as subjects usually did not write out these responses and the investigator frequently became too involved in the discussion following the prearteriogram teaching program to record these responses. However, the majority of the subjects felt

that the information in the slide program was clear to them. The only questions recorded under this item (Item 20) were "Do they make more than one incision for the catheter?" and "Why is the incision needed?" The only questions listed under Item 21 (What other questions about the arteriogram would you like to have answered?) were "Do you need an enema (before the procedure)?", "What is in a liquid meal?", and "What time is the test scheduled to be performed?" The slide portion of the prearteriogram teaching program was very helpful during the discussion following presentation of the program, as the investigator could refer back to the particular slides which illustrated information which needed to be clarified or reinforced.

Subjects were also asked how they felt about having an arteriogram performed. This question was asked both before and immediately after the subjects viewed the prearteriogram teaching program. The majority of the subjects indicated that they were either uneasy or tense about having the procedure performed. No one stated that they were worried or frightened. Only two subjects said they were unconcerned. It is interesting to note that the subjects who had had previous arteriograms or a cardiac catheterization performed indicated that the information they received from the prearteriogram teaching program made them feel more concerned about having the arteriogram performed than those subjects who had never experienced the procedure. Only one subject felt differently after receiving information about the arteriogram. Prior to viewing the prearteriogram teaching program, Subject #8 said he was tense about having the procedure performed. After viewing the program he indicated he was uneasy, rather than tense. For the majority of the subjects the responses

to the affect scale indicated that prior to the arteriogram receiving information about the test did not change their level of affect regarding how they felt about having the procedure performed. The responses to the prearteriogram affect scale will be further discussed with responses to the affect scales on the postarteriogram questionnaire.

Results of Postarteriogram Questionnaire

Following the arteriogram subjects were again asked how they felt prior to the procedure about having the arteriogram performed (Item I). They were also asked how they felt during the time the arteriogram was being performed (Item V). Table 1 presents a comparison of the responses to these two questions and the responses to similar questions (Items 9 and 19) asked in the prearteriogram questionnaire.

TABLE 1. LEVELS OF AFFECT INDICATED BY SUBJECTS BEFORE AND AFTER ARTERIOGRAM PERFORMED. (A COMPARISON OF ITEMS 9 and 19 ON THE PREARTERIOGRAM QUESTIONNAIRE AND ITEMS I AND V ON POSTARTERIOGRAM QUESTIONNAIRE.

	Subject Number	Before Arteriogram		After Arteriogram	
		How subject felt before viewing slide program about having arteriogram performed (Item 9)	How subject felt after viewing slide program about having arteriogram performed (Item 19)	How subject felt prior to procedure about having arteriogram performed (Item I)	How subject felt during procedure about having arteriogram performed (Item V)
*	1	3	3	3	1
**	2	3	3	3	1
***	3	3	3	3	1
	4	2	2	2	1
	5	2	2	2	3
*	6	2	2	2	3
*	7	1	1	1	1
**	8	3	2	2	5
*	9	1	1	2	1

* previous information about arteriogram
** previous arteriogram performed
*** previous cardiac catheterization performed
1 = unconcerned
2 = uneasy
3 = tense
4 = worried
5 = frightened

Responses to Item I on the postarteriogram questionnaire were identical to responses to Item 9 on the prearteriogram questionnaire for seven of the subjects and identical to responses to Item 19 on the prearteriogram questionnaire for eight of the subjects. Thus, it did not appear that the information about the arteriogram which was presented prior to the procedure had any effect upon the way the subjects felt prior to the procedure about having the test performed. However, five of the subjects who said they felt uneasy or tense prior to the procedure indicated that they felt unconcerned during the procedure. A sixth subject remained unconcerned both prior to and during the procedure. Two other subjects changed from feeling uneasy prior to the procedure to feeling tense during the arteriogram. One of these subjects said that he was most concerned during the arteriogram with the arterial puncture prior to insertion of the catheter. The other subject did not give any indication of why she felt tense during the procedure. The most significant change was in Subject #8 who felt uneasy prior to the arteriogram but felt frightened during the test. Although this subject had experienced an arteriogram four years ago, he indicated that he was most concerned during the procedure about "what was coming next." There was insufficient data to further explain the major change in the way this subject felt during the arteriogram as compared to how he felt prior to the procedure.

Table 2 illustrates the responses to Item IV on the postarteriogram questionnaire (How did the information you received in the slide program before the arteriogram make you feel?).

TABLE 2. HOW INFORMATION RECEIVED FROM THE SLIDE PROGRAM PRESENTED PRIOR TO THE ARTERIOGRAM MADE SUBJECTS FEEL ABOUT HAVING THE PROCEDURE PERFORMED (ITEM IV ON THE POSTARTERIOGRAM QUESTIONNAIRE).

	Subject Number	Less Concerned	No Effect	More Concerned
*	1	X		
**	2			X
***	3			X
	4	X		
	5	X		
*	6	X		
*	7		X	
**	8			X
*	9	X		

* previous information about arteriogram
** previous arteriogram performed
*** previous cardiac catheterization performed.

Five subjects said that the information about the arteriogram made them feel less concerned about having the procedure performed; one said the information had no effect upon his feelings; and three subjects indicated that the information made them feel more concerned. It is interesting to note that of the three subjects who said that the information about the arteriogram made them feel more concerned about having the procedure performed, two of the subjects had previously experienced an arteriogram, and one subject had previously experienced a cardiac catheterization. There is insufficient data to explain this phenomenon.

When the responses in Table 1 are compared to the responses in Table 2, the data are not always consistent. Subjects who indicated in Table 2 that the information about the arteriogram made them feel less concerned about having the procedure performed did not check a lower level of feeling on the affect scale when asked how they felt prior to the procedure. However, some subjects did indicate a decrease in their level of concern during the procedure. Of the three subjects who said the information about the arteriogram made them feel more concerned about having the procedure performed, two had no change in their levels of affect prior to the procedure, but decreased their level of concern during the procedure. The third subject showed a slight decrease in his level of concern prior to the procedure, and a major increase in his level of concern during the arteriogram. These differences could possibly be attributed to each individual subject's interpretation of Item IV on the postarteriogram questionnaire. Perhaps the subjects did not perceive the item as being similar to the items on which they chose a level of feeling. It might also be possible that the information

about the arteriogram did not influence their level of feeling about the procedure as much as other variables which were not identified nor measured.

After the completion of the arteriogram, the subjects listed the following as concerning them the most about the procedure before it was performed (Item II): the possible complications and risks of the procedure, what would be done during the procedure and how it would make the subjects feel, and what the arteriogram would show about the patency of the circulatory system. In Item III five subjects listed responses which inferred that the information presented in the prearteriogram teaching program helped them to deal with the concerns which they had before the arteriogram was performed.

In Item VI four subjects indicated that the following were of concern to them while the arteriogram was being performed: the process of making the arterial puncture, "what was coming next," and whether the arteriogram would show that the arteries were patent. The prearteriogram teaching program or information presented in the program was listed by three subjects in Item VII as helping them to deal with the concerns they had while the arteriogram was being performed. Three other subjects indicated that confidence in the personnel performing the arteriogram was helpful in relieving their concerns.

Table 3 presents each individual subject's response to Item VIII on the postarteriogram questionnaire (How helpful was the slide program in preparing you for the arteriogram?).

TABLE 3. INDIVIDUAL RESPONSES TO ITEM VIII ON THE POSTARTERIOGRAM QUESTIONNAIRE (HOW HELPFUL WAS THE SLIDE PROGRAM IN PREPARING YOU FOR THE ARTERIOGRAM?).

	Subject Number	Not Helpful at All	Slightly Helpful	Moderately Helpful	Very Helpful	Extremely Helpful
*	1					X
**	2				X	
***	3		X			
	4				X	
	5			X		
*	6				X	
*	7				X	
**	8			X		
*	9				X	

* previous information about arteriogram.
** previous arteriogram.
*** previous cardiac catheterization.

The majority of the subjects indicated that the prearteriogram teaching program was moderately helpful to very helpful in preparing them for the procedure. None of the subjects said that the program was not helpful to them. In Item IX most of the subjects revealed that the reason the prearteriogram teaching program was helpful to them was because it showed them what was going to happen and gave them a better idea of what to expect. None of the subjects indicated that there was any additional information they would have liked to have had prior to the arteriogram to help prepare them for the procedure, nor was there anything they would have liked to have been different about the preparation. A lack of responses to Item XI led the investigator to infer that the subjects felt that nothing else would have helped to prepare them for the arteriogram.

All but one of the subjects recommended that all patients who have an arteriogram performed should see the prearteriogram teaching program. The majority of these subjects said that the program should be shown to all patients scheduled for an arteriogram because it lets them know what to expect. The one subject who responded "No" to this item (Item XII) felt that some of the information in the program might scare the patients and make them feel the procedure was much worse than it really was. She also added that whoever was presenting the program should first check with the patient to see if he wanted to have the information. Then this subject felt that if the patient desired information about the arteriogram, then it should be given to him. In fact, on the postarteriogram checklist this subject indicated that future patients having arteriograms performed should know all of the items on the list before the procedure is performed.

On the postarteriogram checklist (Item XIV) the majority of the subjects checked that they had learned most of the items on the checklist from the prearteriogram teaching program, or that they already knew these items prior to viewing the program. After comparing the responses to the prearteriogram checklist and the postarteriogram checklist, the investigator noted some inconsistencies in each individual's responses. The items of information that subjects said they already knew prior to viewing the prearteriogram teaching program did not always correspond with what the subjects indicated on the postarteriogram checklist that they had learned in the prearteriogram teaching program or had already known prior to viewing the program. These inconsistencies may be due to the subjects' difficulty in remembering exactly where they learned each item of information about the arteriogram, since they could have learned the information from others who told them about the procedure, from the prearteriogram teaching program, or from actually experiencing the procedure. The investigator recognizes the difficulty in discriminating where information is learned as a limitation of the study. The inconsistencies may also reflect the fact that the subjects may have thought they knew some of the information about the arteriogram prior to viewing the prearteriogram teaching program, but upon viewing the program received information which corrected misinformation they may have held previously.

Four subjects checked items under the category "Even after seeing slide program did not know this before I went for arteriogram." The items which were checked under this category and the number of subjects who checked each item are as follows: Item 6 - "whether or not you

receive special medication just before you go for the arteriogram" (2); Item 10 - "whether or not anesthesia is used" (1); Item 12 - "how long the arteriogram takes to do" (1); Item 13 - "what you can do to help with the arteriogram" (4); Item 14 - "whether or not you have to be in a special position during the arteriogram" (2); Item 15 - "what feelings or sensations you may experience during the arteriogram" (3); Item 16 - "the kind of reactions which you could have to the contrast media (dye) used" (2); and Item 17 - "what kind of care you are given after the arteriogram is finished" (1). One of these subjects indicated that even following the arteriogram he did not know Items 10 and 16. Another subject, who had previously experienced a cardiac catheterization, indicated that following the arteriogram she did not know Items 12, 13, 14, and 15. It is possible that subjects checked that they did not recall these items of information because the items were too generally stated. For example, if Item 15 (what feelings or sensations you may experience) had been restated "how you will feel when the dye is injected," it is possible that fewer subjects would have said they did not recall this information. Since much of the information in the prearteriogram teaching program was new to most of the subjects, it is possible that they were unable to retain all of it after viewing the slide program. This may indicate that supplementary written information should also be left at the bedside to reinforce the information presented in the audio-visual program.

All of the subjects suggested that future patients having arteriograms performed should know Item 9 (how the arteriogram is done) prior to the procedure. Two subjects did not think it was important to inform future patients about who was performing the arteriogram (Item 7).

All but one of the subjects (Subject #5) thought that future patients scheduled for arteriograms should know all of the remaining items of information on the checklist before the test is performed. On Item XIV Subject #5 indicated that the only information that future patients having arteriograms performed should know before the procedure is "How the arteriogram is done." However, on Item XII this same subject checked "Yes" when asked if all patients who will have an arteriogram performed should see the prearteriogram teaching program, which includes all of the items of information listed on the postarteriogram checklist. Also of interest were the responses to Items XII and XIV by Subject #3, who had previously experienced a cardiac catheterization. Although this subject indicated in Item XII that she did not think the prearteriogram teaching program should be shown to all patients who would have an arteriogram performed, on Item XIV she checked that future patients having arteriograms performed should know all of the items of information on the checklist before the test is performed.

Influence of Variables

Because of the small size of the sample, it was difficult to arrive at any definite conclusions regarding the influence of age, sex, educational level, previous experience with arteriograms, and receipt of previous information about the arteriogram upon the responses to the questionnaires. These variables were examined in relation to the responses to Items 9 and 19 on the prearteriogram questionnaire and Items I, IV, V, VIII, and XII on the postarteriogram questionnaire. A frequency distribution of this data is presented in Tables 4 through 10 which are included in the Appendix.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

An exploratory study was conducted in order to identify what information patients have and/or want to have about an arteriogram prior to the procedure being performed, and to evaluate the effectiveness of a prearteriogram teaching program in preparing the patient for the procedure by providing this information. The final sample consisted of nine adult patients who were hospitalized and scheduled for arteriography (except for cerebral arteriograms). Data were collected over a two-and-a-half month period utilizing a prearteriogram and a postarteriogram questionnaire.

Subjects were contacted prior to the arteriogram and asked to complete part of the prearteriogram questionnaire on which they indicated what information they had about the arteriogram and what information they desired to have about the procedure. The prearteriogram teaching program (a cassette tape recording with accompanying slides) was then presented to the subjects, utilizing the Singer Caramate (Model SP-2). The program provided the subjects with information about the arteriogram, including preparation for the procedure, how the procedure was performed, and post-procedural care. The subjects then completed the remainder of the prearteriogram questionnaire on which they indicated how they felt about having the arteriogram performed, and on which they listed any further questions they had about the arteriogram. Within forty-eight hours of the completion of the arteriogram the subjects were again contacted and asked to complete the postarteriogram questionnaire. On this questionnaire

they indicated how helpful the audio-visual program was in preparing them for the procedure, identified what information they recalled from the program, and gave their recommendations for preparing future patients for the arteriogram.

Conclusions

Although the sample in the study was small, analysis of the data collected did provide some answers to the questions posed at the beginning of the study. In general, the most information that patients had about the arteriogram prior to the procedure was what the arteriogram was and why it was being performed, including patients who said they had been told about the test. Even patients who had had an arteriogram performed before did not have comprehensive knowledge of the procedure, its preparation, and postprocedural care. The results indicated that these subjects were given very little, if any, information about the arteriogram prior to the procedure, and thus suggested that health care providers should not assume that just because a patient has previously experienced an arteriogram, he does not need any preprocedural instruction.

The results of the prearteriogram questionnaire also revealed that patients desire information about the arteriogram prior to the procedure. Generally, the subjects wanted information about all of the items on the prearteriogram checklist.

Analysis of the responses to the affect scales inferred that receipt of information about the arteriogram prior to the procedure did not affect the level of concern subjects had before the test about having the arteriogram performed. However, when the subjects were asked if the information they received prior to the arteriogram made them feel less

concerned or more concerned about having the procedure performed, five of the nine subjects said they were less concerned about having the procedure performed after receiving information about the arteriogram. It was also noted that five of the subjects did check a lower level of affect when they were asked how they felt while the arteriogram was being performed. Five subjects mentioned the prearteriogram teaching program as being helpful in relieving the concerns they had about the arteriogram prior to the procedure, while three subjects referred to the information received in the program as being helpful in relieving their concerns during the arteriogram. Thus, the investigator concluded that the affect scales did not reflect a change in levels of concern prior to the arteriogram. However, other data suggested that the information presented in the prearteriogram teaching program appeared to lessen or maintain the level of concern during the arteriogram of most of the subjects in the study. Since the affect levels of most of the subjects decreased while the arteriogram was being performed, the investigator speculated that the information about the arteriogram which was presented prior to the procedure may have stimulated some "work of worrying" so that the subjects developed a more realistic expectation of the procedure. The subjects most likely indicated a lower level of concern during the procedure because they observed that what was occurring coincided with the information they received prior to the arteriogram. Subjects who indicated a higher level of concern may have done so because a variation in the procedure occurred, (e.g., difficulty inserting arterial catheter).

All of the subjects found the prearteriogram teaching program to be helpful to some degree in preparing them for the arteriogram. Almost

all of the subjects recommended that future patients scheduled for arteriograms be shown the prearteriogram teaching program, and suggested that future patients should be told about all of the items on the post-arteriogram checklist (Item XIV).

Most of the subjects in the study indicated that they learned information about the arteriogram from the prearteriogram teaching program. Although five subjects indicated that there were some items of information they did not recall learning from the audio-visual program, the investigator postulated that this was partly due to the fact that it may have been difficult for the subjects to discriminate where particular items of information were learned, and partly due to the wording of the items on the checklist.

The investigator believes that the presentation of information about the arteriogram in an audio-visual program prior to the procedure was an effective means of providing information to the subjects and preparing them to cope with a potentially stressful situation. However, it is possible that recall of information might have been enhanced through the use of supplementary written information left at the patient's bedside after the audio-visual program was shown.

Recommendations

As the sample in this study was small the investigator recommends that this study be replicated, utilizing a larger sample which perhaps includes subjects from more than one institution and persons who have arteriograms performed on an outpatient basis. Replicating the study with a larger sample might validate the findings of this study and also identify variables which might influence the learning process and the

levels of concern experienced by the subjects before, during, and after the arteriogram. The investigator suggests utilizing the modifications of the instruments discussed in the chapter on methodology. Use of a pre and posttest, open-ended questions, or multiple choice questions might be more effective in obtaining validation of the knowledge subjects have of the 17 items on the "checklist." It might also be interesting to utilize a semantic differential scale for affective responses. This might avoid assigning words to each level of affect that some subjects might not use to describe how they felt.

Since Johnson and Rice found in their study that a partial description of sensations which patients may experience is as helpful in reducing distress as a complete description of sensations, in future studies it would be helpful to have subjects identify the importance of each item of information on the checklist. (10:203) Since patients would be more likely to pay attention to information which they perceive as being important, identification of the items of information about an arteriogram that patients feel are most important to know would be of value to persons developing patient education programs. If no formal patient education program is available to prepare patients for an arteriogram, knowledge of which items of information about the arteriogram are most important to tell patients would be of value to nurses who are only able to provide a partial description of the procedure and the sensations experienced.

Additional studies might be conducted to determine which method of presenting information about the arteriogram is most effective--a slide-tape program, written information, oral presentation, or combinations of the three methods. As few studies were found which identified what patients wanted to know about diagnostic procedures, future studies

could be conducted to identify what patients want to know about other complex diagnostic procedures. Results of these studies would be helpful in developing additional programs to prepare patients for other complex diagnostic procedures. In addition, these studies might validate the need for better patient education in the area of preparation for diagnostic procedures.

As this study identified some of the areas in which patients desire information about a particular diagnostic procedure, nurses could utilize this knowledge to guide them in determining what information to present to patients being prepared for other complex diagnostic procedures. For example, the program utilized in this study could serve as a model for the development of a patient education program to prepare patients for cardiac catheterization. Utilization of audio-visual equipment to present this information might assist the nurse in utilizing her time with the patient more efficiently. After the patient has viewed an audio-visual program which provides information about a particular diagnostic procedure, the nurse could use the time she has available to answer any questions, clarify or reinforce information, or reassure the patient who may have concerns. Utilizing a standardized program could also prevent confusion about what the patient has been told about a particular procedure.

The instruments utilized in this study could be used as models for evaluation of patient education programs which provide patients with information about other diagnostic procedures. The pre/postprocedural checklist in particular might be of value, as it contains several items of information common to some other diagnostic procedures. These items

of information might also be helpful to the investigator developing a pre/posttest to evaluate a program to prepare patients for an arteriogram or another diagnostic procedure.

The prearteriogram teaching program which was developed for this study could be used outside the hospital setting. Physicians who frequently refer patients to the hospital for arteriograms could present this program to patients while they are in the physician's office. In this way patients could become acquainted with the arteriogram procedure before they were admitted to the hospital. Any questions about the procedure could then be answered by the physician or his office nurse. By receiving information about the arteriogram prior to hospitalization, the patient could have more time to decide if he wants to consent to have the procedure performed. If the physician utilizes a standardized audio-visual program to provide the patient with information about the procedure, it will save him time in explaining the procedure to the patient, and he can use his time more efficiently to answer questions, or clarify information. When "informed consent" is obtained to perform the arteriogram, the physician will know what the patient has been told and can document what information has been provided to the patient. It might be particularly beneficial to present the prearteriogram teaching program in the physician's office to patients who enter the hospital as out-patients to have the arteriogram performed. These individuals might have no other opportunity to be provided with information about the arteriogram prior to the procedure being performed.

The prearteriogram teaching program could also be utilized as a teaching tool to acquaint professional students and ancillary health care providers (e.g., nurses' aides) with the arteriogram procedure. For

example, nursing students could view the program to obtain information which they could then use to teach patients what to expect about the arteriogram if the institution in which the arteriogram will be performed does not have this patient education program or the resources to utilize such a program. Nursing students or even regular staff members or nurses' aides could be shown the prearteriogram teaching program in order to let them know what the patient experiences when an arteriogram is performed. By learning what occurs when an arteriogram is performed these health care providers might not only gain a better appreciation of what the patient experiences, but also a better understanding of the rationale for the postprocedural nursing care. Utilizing the prearteriogram teaching program for this purpose might also be of value for nurses who "float" between units and may be unfamiliar with this procedure, or for new graduate nurses who may never have observed an arteriogram. Students in X-ray technology could be shown the program to teach them what the patient experiences before and after the arteriogram. By seeing what the patient experiences outside of the X-ray Department, X-ray technologists might gain an understanding of the preparation the patient has been given, and could provide reinforcement of postprocedural instructions.

The investigator believes that utilizing an audio-visual program to present information to patients is beneficial in that patients can actually see what is being talked about, and thus can develop more realistic expectations of what is being explained. The visual portion of the program can provide reinforcement of the information presented, or may serve to illustrate or clarify specific points. In addition, an audio-visual program presents the same information to each patient, and can

be referred to when documenting that the patient has been given information. By utilizing slides and a cassette tape for the audio-visual medium, changes in information might easily be made by merely re-recording the tape and/or replacing one or two slides, rather than having to remake the entire program. The slide-tape program could also be shown to groups of patients as well as individual patients. Patients who are unable to see well might benefit from just listening to the tape recording or a modification of the taped portion of the program designed specifically for persons who could not see the slides. Photographs could be made from the slides and organized into a booklet with the accompanying script beside each picture. This booklet could be used for persons with hearing difficulties, or could be given to patients when no one is available to present the audio-visual program, or when the equipment may not be available due to mechanical failure or usage for other purposes. If physicians do not wish to show an audio-visual program in their office, the booklet could be given to patients so that they could learn about the arteriogram prior to entering the hospital for the procedure to be performed.

Although the investigator recognizes the audio-visual program, such as the one utilized in this study, as being a valuable tool, she does not recommend using an audio-visual program as the sole means of preparing patients for procedures. The investigator believes that the verbal interaction between the nurse and the patient who will undergo a complex diagnostic procedure is also of value in preparing the patient for the procedure. Nurses should utilize audio-visual programs to assist them with patient education, not to take the place of the nurse in providing the patient with information.

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APPENDIX

Appendix A

OUTLINE OF PREARTERIOGRAM TEACHING PROGRAM

I. Introduction

- A. Purpose of X-rays in general
- B. Purpose of arteriogram
- C. Definition of arteries and veins
- D. Definition of arteriogram
- E. Difference between ordinary X-ray and arteriogram (dye injected)
- F. Purpose of prearteriogram presentation

II. Preparation for arteriogram

- A. Dietary restrictions (NPO after 12 midnight)
- B. Patient gown to be worn for X-ray
- C. Preprocedural medication
  1. When administered
  2. Purpose
  3. How medication will make patient feel
- D. Safety precautions taken after preoperative medication administered
  1. Patient to stay in bed and not to smoke
  2. Side rails up on bed
- E. How taken to X-ray (cart)

III. Arteriogram procedure

- A. Approximate length of time for arteriogram to be performed
- B. Where arteriogram is performed
- C. Personnel involved in performing arteriogram
  1. Radiologist
  2. Operating room technician or operating room nurse

3. X-ray technologist

D. View of X-ray room and equipment

1. X-ray table

2. Fluoroscope and its purpose

E. Reason arteriogram is minor surgery

F. Possible sites for incision

1. Groin

2. Arm

3. Back

G. Skin prep and purpose

1. Shaving of hair around incision site

2. Betadine soap scrub

H. Purpose of sterile scrub gowns on personnel

I. Sterile drapes

1. Why used

2. What is covered

J. Function of technologist who stays with patient during procedure

K. Injection of local anesthetic

L. Incision made

M. Threading of catheter into artery

N. Checking catheter position with fluoroscope

O. Connection of catheter to dye machine

1. Testing for allergy to dye

2. Possible symptoms of allergic reaction

P. Positioning of patient for X-rays and how patient can help

Q. Injection of dye

1. Sensations experienced when dye injected

2. Sound of film being advanced

R. Catheter removal

1. Manual pressure applied to artery for 10 to 15 minutes

2. Sandbag sometimes applied over bandaged incision

IV. Postarteriogram care

A. Bedrest for 12 to 24 hours

B. Frequent checks of incision and vital signs by nurse

C. Diet may be resumed

D. "Sleepiness" sometimes experienced (side effect of preoperative medication)

V. Interpretation of X-ray and report of results

VI. Consent form

A. Reason for form

B. Sample form

VII. Some risks and complications of arteriogram

VIII. Benefits of arteriogram

IX. Conclusion and opportunity to ask questions

Appendix B

Sample Informed Consent Form for Arteriogram

DEPARTMENT OF HOSPITAL RADIOLOGY - SPECIAL PROCEDURE SECTION
Informed consent for arteriography and phlebography

Dear Patient,

Your doctor has referred you to us for an angiogram (a study of your blood vessels). We would like to inform you of what we are going to do and of possible complications that might result from this procedure.

A small tube (catheter) will be introduced into one or several of your blood vessels. Later we will inject a dye which is opaque to X-rays. This will enable us to see blood vessels in your body which may be diseased. The catheter will be introduced into an artery either in your groin or at times in your arm, just above the elbow. This is done either by puncturing the artery with a needle, or through the means of minor surgery. The study is done under local anesthesia.

Although the possibility of clotting the vessel used is small, it does happen occasionally. In addition, it is possible that an artery or arteries feeding an organ could also be clotted. In either of these circumstances, it may be necessary to perform surgery to remove the clot or to treat you with certain medications which may dissolve the clot. I am sure you realize that although the risk is very small, clotting the blood supply to an organ can result in the loss of that organ, and remotely, in the loss of life. The latter is true of other complications but is just as rare.

During the procedure, it is possible that dye (contrast medium) might result in an adverse reaction causing hives, shortness of breath, extremely low blood pressure, and rarely, temporary or permanent paralysis.

Upon removing the catheter, it is occasionally difficult to stop bleeding; a small lump (hematoma) may form at the point where the catheter was introduced into the blood vessel. These generally subside in several days; however, large hematomas may have to be treated with surgical evacuation and the hole in the artery sewed shut. More rarely, but another possibility, a small tear may develop in the blood vessel resulting in what we call pseudoaneurysm, which acts like a bulge in a weakened rubber tire. This may also require corrective surgery.

There are still more unusual complications which we could mention, but because they are so rare it would be impractical to list them. If you desire, these will be discussed with you.

Our overall "serious" complications rate is approximately 1 in 500 cases. Your chances of being injured in an auto accident in the United States during 1969 were 1 in 100.

Unfortunately, this information may have alarmed you, but I believe it to be in your best interests to know what is involved.

Sincerely,

_____	_____
Date	Signature of patient giving consent for arteriographic procedure or responsible relative

Witnesses:

1. _____

2. _____

Appendix C

Sample of Questionnaires Used to Collect Data

Your doctor has ordered a special X-ray test called an arteriogram to be performed on you. As a graduate student in nursing, I am helping the X-ray Department in this hospital to study what information patients have about arteriograms and what information they would like to know about arteriograms, so that we can learn how to better prepare patients for this special kind of X-ray.

Your participation in this study would involve the completion of a brief questionnaire and background information about yourself before you have the arteriogram done. I would then give you some information about the arteriogram. Within 24 to 48 hours after your arteriogram is done, I would also need to have you complete another questionnaire. The doctor who is in charge of this special procedure has consented to let me talk with you to obtain your consent to participate in this study. There is no financial cost involved with your participation. Your name will not be used on the questionnaire, nor will it be mentioned in any way in relation to the study. Should you decide to withdraw from the study, you may do so at any time without giving a reason. However, your participation will help to identify what patients want to know about the arteriogram so that the persons who care for you in the hospital will better know what to tell you and future patients about the arteriogram before it is done. Your signature below indicates your consent to participate in this study.

Claudia Johnson, R.N.
Graduate Student
Indiana University
School of Nursing

I hereby consent to participate in this study as explained above.

SIGNED _____

BACKGROUND INFORMATION

1. Age: _____

2. Sex: Male _____ Female _____

3. Educational level completed:

   _____ less than high school

   _____ high school

   _____ more than high school

4. Occupation: _____

5. Reason for this hospitalization: _____

   _____

6. Have you ever had an arteriogram done before?

   No _____

   Yes _____

7. Has anyone told you about this test (arteriogram)?

   No _____

   Yes _____

   If "Yes", who gave you information?

   _____ Doctor

   _____ Nurse

   _____ X-ray personnel

   _____ Other (list) _____

8. Have you signed the special consent form for the arteriogram?

   No _____

   Yes _____

9. How do you feel about having an arteriogram done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened

PREARTERIOGRAM QUESTIONNAIRE

Read the numbered items on the left side of the page. Then check the box (or boxes) on the right side of the page that indicate what you already know or would like to know about each item.

	ALREADY KNOW THIS	WOULD LIKE TO KNOW THIS	DO NOT WANT TO KNOW THIS
1. What an arteriogram is.			
2. Why the arteriogram is being done.			
3. Where in the hospital the arteriogram will be done.			
4. What the room where the arteriogram will be done looks like.			
5. Whether or not I can eat before the arteriogram is done.			
6. Whether or not I will receive special medication just before I go for the arteriogram.			
7. Who will do the arteriogram.			
8. The part of the body on which the arteriogram will be done.			
9. How the arteriogram is done.			
10. Whether or not anesthesia will be used.			
11. What kind of equipment will be used to do the arteriogram.			

	ALREADY KNOW THIS	WOULD LIKE TO KNOW THIS	DO NOT WANT TO KNOW THIS
12. How long the arteriogram will take to do.			
13. What I can do to help with the arteriogram.			
14. Whether or not I have to be in a special position during the arteriogram.			
15. What feelings or sensations I may experience during the arteriogram.			
16. The kind of reactions which I could have to the contrast media (dye) used.			
17. What kind of care I will be given after the arteriogram is finished.			
18. Other (list) _____ _____			

THESE QUESTIONS ARE TO BE ANSWERED AFTER YOU HAVE BEEN GIVEN INFORMATION ABOUT THE ARTERIOGRAM.

19. After viewing the slide program how do you feel about having an arteriogram done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened

20. What information in the slide program was not clear to you? (List)

_____

_____

_____

_____

_____

21. What other questions about the arteriogram would you like to have answered? (List)

_____

_____

_____

_____

_____

POSTARTERIOGRAM QUESTIONNAIRE

I. How did you feel about the arteriogram before it was done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened

II. What, if anything, concerned you most about the arteriogram before it was done?

_____

_____

III. What, if anything, helped you to deal with the concerns you had before the arteriogram was done?

_____

_____

IV. How did the information you received in the slide program before the arteriogram make you feel?

_____ Made me feel less concerned about having the arteriogram done.

_____ Did not affect me one way or the other.

_____ Made me feel more concerned about having the arteriogram done.

_____ Other (Explain) _____

V. How did you feel about the arteriogram while it was being done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened

VI. What, if anything, concerned you most about the arteriogram while it was being done?

_____

_____

VII. What, if anything, helped you to deal with the concerns you had while the arteriogram was being done?

_____

_____

VIII. How helpful was the slide program in preparing you for the arteriogram? (Circle one)

1	2	3	4	5
not helpful at all	slightly helpful	moderately helpful	very helpful	extremely helpful

IX. If you found the slide program to be helpful, in what way was it helpful in preparing you for the arteriogram?

_____

_____

X. If you did not find the slide program to be helpful in preparing you for the arteriogram,

a. what would you have liked to have been different?

_____

_____

b. what, if any, additional information would you have liked to have had?

_____

_____

XI. What else would have helped to prepare you for your arteriogram?

_____

_____

XII. Do you think all patients who will have an arteriogram should see the slide program?

Yes _____

If "Yes", why? (Explain) _____

_____

No _____

If "No", why not? (Explain) _____

_____

XIII. Additional comments: _____

_____

_____

XIV. Read the numbered items on the left side of the page. For each item check the box or boxes on the right side of the page that apply to you. If none of the four choices on the right side of the page apply to you, then do not check any of the boxes for that particular item.

	LEARNED IN SLIDE PROGRAM	EVEN AFTER SEEING SLIDE PROGRAM DID NOT KNOW THIS BEFORE I WENT FOR ARTERIOGRAM	DO NOT KNOW THIS NOW	THINK FUTURE PATIENTS HAVING ARTERIOGRAMS SHOULD KNOW THIS BEFORE TEST IS DONE
1. What an arteriogram is.				
2. Why the arteriogram is done.				
3. Where in the hospital the arteriogram is done.				
4. What the room where the arteriogram is done looks like.				
5. Whether or not you can eat before the arteriogram is done.				
6. Whether or not you receive special medication just before you go for the arteriogram.				
7. Who does the arteriogram.				
8. The part of the body on which the arteriogram is done.				
9. How the arteriogram is done.				

	LEARNED IN SLIDE PROGRAM	EVEN AFTER SEEING SLIDE PROGRAM DID NOT KNOW THIS BEFORE I WENT FOR ARTERIOGRAM	DO NOT KNOW THIS NOW	THINK FUTURE PATIENTS HAVING ARTERIOGRAMS SHOULD KNOW THIS BEFORE TEST IS DONE
10. Whether or not anesthesia is used.				
11. What kind of equipment is used to do the arteriogram.				
12. How long the arteriogram takes to do.				
13. What you can do to help with the arteriogram.				
14. Whether or not you have to be in a special position during the arteriogram.				
15. What feelings or sensations you may experience during the arteriogram.				
16. The kind of reactions which you could have to the contrast media (dye) used.				
17. What kind of care you are given after the arteriogram is finished.				
18. Other (list) _____ _____ _____				

Appendix D

QUESTIONNAIRE WITH FINAL TABULATION OF RAW DATA

BACKGROUND INFORMATION

1. Age: 43, 54, 61, 62, 62, 63, 69, 69, 72 Average age = 61.6 years.
   No. less than 61.6 yrs. = 3
2. Sex: Male 6 Female 3 No. greater than 61.6 yrs. = 6

3. Educational level completed:

   3 less than high school

   5 high school

   1 more than high school

4. Occupation: construction worker, retired teacher & social worker, housewife, management (supermarket), dock hand, retired rubber worker, truck driver, billing & title clerk, retired banker.

5. Reason for this hospitalization: bad leg & foot; poor circulation; arteriogram-legs hurt to walk--poor circulation; pain in left thigh and leg; urinating blood; cold feet & legs; lack of circulation in legs; blockage in arteries in throat; hypertension.

6. Have you ever had an arteriogram done before?

   No 7 (One subject who checked this option did admit she had a cardiac catheterization in June, 1977)

   Yes 2 (One = 4 years ago)

7. Has anyone told you about this test (arteriogram)?

   No 4 Yes 5

   If "Yes", who gave you information?

   4 Doctor

   1 Nurse

   1 X-ray personnel (Told subject when test was scheduled)

   2 Other (list) "Son-in-law" = 1; "Brother" = 1

8. Have you signed the special consent form for the arteriogram?

   No 9 Yes 0

9. How do you feel about having an arteriogram done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened
(2)	(3)	(4)	(0)	(0)

PREARTERIOGRAM QUESTIONNAIRE

Read the numbered items on the left side of the page. Then check the box (or boxes) on the right side of the page that indicate what you already know or would like to know about each item.

(DOESN'T MATTER)		ALREADY KNOW THIS	WOULD LIKE TO KNOW THIS	DO NOT WANT TO KNOW THIS
	1. What an arteriogram is.	6	3	0
	2. Why the arteriogram is being done.	8	1	0
1	3. Where in the hospital the arteriogram will be done.	1	7	0
1	4. What the room where the arteriogram will be done looks like.	1	7	0
	5. Whether or not I can eat before the arteriogram is done.	2	7	0
	6. Whether or not I will receive special medication just before I go for the arteriogram.	2	7	0
	7. Who will do the arteriogram.	0	9	0
	8. The part of the body on which the arteriogram will be done.	3	6	0
	9. How the arteriogram is done.	2	7	0
	10. Whether or not anesthesia will be used.	0	9	0
	11. What kind of equipment will be used to do the arteriogram.	1	8	0

(DOESN'T MATTER)		ALREADY KNOW THIS	WOULD LIKE TO KNOW THIS	DO NOT WANT TO KNOW THIS
	12. How long the arteriogram will take to do.	0	9	0
	13. What I can do to help with the arteriogram.	0	9	0
	14. Whether or not I have to be in a special position during the arteriogram.	2	7	0
	15. What feelings or sensations I may experience during the arteriogram.	2	7	0
	16. The kind of reactions which I could have to the contrast media (dye) used.	0	9	0
	17. What kind of care I will be given after the arteriogram is finished.	0	9	0
	18. Other (list) _____ _____	0	0	0

THESE QUESTIONS ARE TO BE ANSWERED AFTER YOU HAVE BEEN GIVEN INFORMATION ABOUT THE ARTERIOGRAM.

19. After viewing the slide program how do you feel about having an arteriogram done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened
(2)	(4)	(3)	(0)	(0)

20. What information in the slide program was not clear to you? (List)

Do they make more than one incision for the catheter?

Why is the incision needed?

"Nothing."

NR = 6

21. What other questions about the arteriogram would you like to have answered? (List)

Do you need an enema? What is in a liquid meal?

"None."

NR = 7

What time is the test scheduled to be performed?

POSTARTERIOGRAM QUESTIONNAIRE

I. How did you feel about the arteriogram before it was done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened
(1)	(5)	(3)	(0)	(0)

II. What, if anything, concerned you most about the arteriogram before it was done?

Subject # 1, 6. "Everything." = 2
2 "Some complitations explained to be in the film."
3. "It would hurt."
4. "Not knowing exactly what was to happen."
5. NR = 1
6. See above
7. "How the circulation would show up."
8. "The risk."
9. "Unconcerned."

III. What, if anything, helped you to deal with the concerns you had before the arteriogram was done?

Subject # 1. "The slide program."
2. "Dr. Dicks."
3. NR = 1
4. "The pictures and diagrams shown."
5. "What I saw and read about it."
6. "T.V. slides."
7. "Faith."
8. "This questionnaire."
9. "Unconcerned."

NR = No Response to item.

IV. How did the information you received in the slide program before the arteriogram make you feel?

__5__ Made me feel less concerned about having the arteriogram done.

__1__ Did not affect me one way or the other.

__3__ Made me feel more concerned about having the arteriogram done.

__0__ Other (Explain) _____

V. How did you feel about the arteriogram while it was being done? (Circle one)

1	2	3	4	5
unconcerned	uneasy	tense	worried	frightened
(6)	(0)	(2)	(0)	(1)

VI. What, if anything, concerned you most about the arteriogram while it was being done?

Subject #
1. NR
2. NR
3. NR
4. "Nothing. I went to sleep and slept through most of it."
5. NR
6. "What was being done to groin--felt ill."
7. "The circulation--open arteries." (Wondered if arteries patent.)
8. "What was coming next."
9. "It was necessary to try two places to insert the dye."

NR = 4

VII. What if anything, helped you to deal with the concerns you had while the arteriogram was being done?

Subject #
1. "The dr. and nurses."
2. "Seeing program before test."
3. NR
4. "Knowing that if I didn't lie still I'd have it all to do over agin."
5. NR
6. "T.V. slide."
7. "I have the belief what ever will be will be and after seeing them in X-ray I believed they knew what they doing."
8. "Nothing."
9. "I had confincence the doctor knew what he was doing."

NR = 2

NR = No Response to item.

VIII. How helpful was the slide program in preparing you for the arteriogram? (Circle one)

1	2	3	4	5
not helpful at all	slightly helpful	moderately helpful	very helpful	extremely helpful
(0)	(1)	(2)	(5)	(1)

IX. If you found the slide program to be helpful, in what way was it helpful in preparing you for the arteriogram?

Subject # 1. "Showed me what was going to happen."
2. "Better understanding of the arteriogram."
3. "Knowing more what to expect."
4. "It showed me what would be done and what I could expect."
5. "I knew what was going to be done."
6. "Knew what was going to be done."
7. "In seeing the proceedure."
8. "What I had to do to help."
9. NR = 1

X. If you did <u>not</u> find the slide program to be helpful in preparing you for the arteriogram,

a. what would you have liked to have been different?

NR = 9

b. what, if any, additional information would you have liked to have had?

Subject # 7, 8. "None." = 2

NR = 7

XI. What else would have helped to prepare you for your arteriogram?

Subject # 7, 8 "Nothing." = 2
NR = 7

NR = No Response to item

XII. Do you think all patients who will have an arteriogram should see the slide program?

Yes 8

If "Yes", why? (Explain)

Subject # 1. "It lets you know what is going to happen."
2. "It give them more knowlidge of what to expect."
4. "Because I doubt that any of them would get as full an explanation otherwise."
5. NR = 1
6. "Preparation for test."
7. "Because it prepares you more for what its all about."
8. "Calms their fear of the unknown."
9. "So they would know a little better what would be done."

No 1

If "No", why not? (Explain)

Subject # 3. "It might scare them." (Should check first to see if they want the information)

XIII. Additional comments:

Subject # 3. "It might seem much worse than it really was."
6. "Felt ill and needed smelling salts."
7. "None. Would do it over again."
NR = 6

NR = No Response to item.

XIV. Read the numbered items on the left side of the page. For each item check the box or boxes on the right side of the page that apply to you. If none of the four choices on the right side of the page apply to you, then do not check any of the boxes for that particular item.

(ALREADY KNEW)		LEARNED IN SLIDE PROGRAM	NR	EVEN AFTER SEEING SLIDE PROGRAM DID NOT KNOW THIS BEFORE I WENT FOR ARTERIOGRAM	DO NOT KNOW THIS NOW	THINK FUTURE PATIENTS HAVING ARTERIOGRAMS SHOULD KNOW THIS BEFORE TEST IS DONE	NR
2	1. What an arteriogram is.	6	1	0	0	8	1
4	2. Why the arteriogram is done.	5	0	0	0	8	1
1	3. Where in the hospital the arteriogram is done.	8	0	0	0	8	1
1	4. What the room where the arteriogram is done looks like.	8	0	0	0	8	1
3	5. Whether or not you can eat before the arteriogram is done.	6	0	0	0	8	1
0	6. Whether or not you receive special medication just before you go for the arteriogram.	7	0	2	0	8	1
0	7. Who does the arteriogram.	9	0	0	0	7	2
2	8. The part of the body on which the arteriogram is done.	7	0	0	0	8	1
2	9. How the arteriogram is done.	7	0	0	0	9	0

NR = No Response to item.

(ALREADY KNEW)		LEARNED IN SLIDE PROGRAM		EVEN AFTER SEEING SLIDE PROGRAM DID NOT KNOW THIS BEFORE I WENT FOR ARTERIOGRAM	DO NOT KNOW THIS NOW	THINK FUTURE PATIENTS HAVING ARTERIOGRAMS SHOULD KNOW THIS BEFORE TEST IS DONE	
			NR				NR
1	10. Whether or not anesthesia is used.	6	0	1	1	8	1
0	11. What kind of equipment is used to do the arteriogram.	9	0	0	0	8	1
1	12. How long the arteriogram takes to do.	6	0	1	1	8	1
0	13. What you can do to help with the arteriogram.	4	0	4	1	8	1
0	14. Whether or not you have to be in a special position during the arteriogram.	6	0	2	1	8	1
0	15. What feelings or sensations you may experience during the arteriogram.	5	0	3	1	8	1
0	16. The kind of reactions which you could have to the contrast media (dye) used.	6	0	2	1	8	1
2	17. What kind of care you are given after the arteriogram is finished.	6	0	1	0	8	1
	18. Other (list) _____ _____ _____	0	9	0	0	0	9

NR = No Response to item.

TABLE 4. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM 9 ON THE PREARTERIOGRAM QUESTIONNAIRE (HOW DO YOU FEEL ABOUT HAVING AN ARTERIOGRAM DONE?)

		Unconcerned	Uneasy	Tense	Worried	Frightened
Age:	Younger than 61.6 yrs.	0	1	2	0	0
	Older than 61.6 yrs.	2	2	2	0	0
Sex:	Male	2	2	2	0	0
	Female	0	1	2	0	0
Education:	Less than High School	2	0	1	0	0
	High School	0	3	2	0	0
	More than High School	0	0	1	0	0
Previous arteriogram performed:	No	2	3	2	0	0
	Yes	0	0	2	0	0
Previous Information about Arteriogram:	No	0	2	2	0	0
	Yes	2	1	2	0	0

TABLE 5. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM 19 ON THE PREARTERIOGRAM QUESTIONNAIRE (AFTER VIEWING THE SLIDE PROGRAM HOW DO YOU FEEL ABOUT HAVING AN ARTERIOGRAM DONE?)

		Unconcerned	Uneasy	Tense	Worried	Frightened
Age:	Younger than 61.6 yrs.	0	1	2	0	0
	Older than 61.6 yrs.	2	3	1	0	0
Sex:	Male	2	3	1	0	0
	Female	0	1	2	0	0
Educational Level:	Less than High School	2	0	1	0	0
	High School	0	4	1	0	0
	More than High School	0	0	1	0	0
Previous Arteriogram Performed:	No	2	3	2	0	0
	Yes	0	1	1	0	0
Previous Information About Arteriogram:	No	0	2	2	0	0
	Yes	2	2	1	0	0

TABLE 6. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM I ON THE POSTARTERIOGRAM QUESTIONNAIRE (HOW DID YOU FEEL ABOUT THE ARTERIOGRAM BEFORE IT WAS DONE?)

		Unconcerned	Uneasy	Tense	Worried	Frightened
Age:	Younger than 61.6 yrs.	0	1	2	0	0
	Older than 61.6 yrs.	1	4	1	0	0
Sex:	Male	1	4	1	0	0
	Female	0	1	2	0	0
Educational Level:	Less than High School	1	1	1	0	0
	High School	0	4	1	0	0
	More than High School	0	0	1	0	0
Previous Arteriogram Performed:	No	1	4	2	0	0
	Yes	0	1	1	0	0
Previous Information About Arteriogram:	No	0	2	2	0	0
	Yes	1	3	1	0	0

TABLE 7. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM IV ON THE POSTARTERIOGRAM QUESTIONNAIRE (HOW DID THE INFORMATION YOU RECEIVED IN THE SLIDE PROGRAM BEFORE THE ARTERIOGRAM MAKE YOU FEEL?)

		Less Concerned	No Effect	More Concerned	Other
Age:	Younger than 61.6 yrs.	2	0	1	0
	Older than 61.6 yrs.	3	1	2	0
Sex:	Male	4	1	1	0
	Female	1	0	2	0
Educational Level:	Less than High School	2	1	0	0
	High School	2	0	2	0
	More than High School	0	0	1	0
Previous Arteriogram Performed:	No	5	1	1	0
	Yes	0	0	2	0
Previous Information About Arteriogram:	No	2	0	2	0
	Yes	3	1	1	0

TABLE 8. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM V ON THE POSTARTERIOGRAM QUESTIONNAIRE (HOW DID YOU FEEL ABOUT THE ARTERIOGRAM WHILE IT WAS BEING DONE?)

		Unconcerned	Uneasy	Tense	Worried	Frightened
Age:	Younger than 61.6 yrs.	2	0	1	0	0
	Older than 61.6 yrs.	4	0	1	0	1
Sex:	Male	4	0	1	0	1
	Female	2	0	1	0	0
Educational Level:	Less than High School	3	0	0	0	0
	High School	2	0	2	0	1
	More than High School	1	0	0	0	0
Previous Arteriogram Performed:	No	5	0	2	0	0
	Yes	1	0	0	0	1
Previous Information About Arteriogram:	No	3	0	1	0	0
	Yes	3	0	1	0	1

TABLE 9. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM VIII ON THE POSTARTERIOGRAM QUESTIONNAIRE (HOW HELPFUL WAS THE SLIDE PROGRAM IN PREPARING YOU FOR THE ARTERIOGRAM?)

		Not Helpful At All	Slightly Helpful	Moderately Helpful	Very Helpful	Extremely Helpful
Age:	Younger than 61.6 yrs.	0	1	0	1	1
	Older than 61.6 yrs.	0	0	2	4	0
Sex:	Male	0	0	1	4	1
	Female	0	1	1	1	0
Educational Level:	Less than High School	0	0	0	2	1
	High School	0	1	2	2	0
	More than High School	0	0	0	1	0
Previous Arteriogram Performed:	No	0	1	1	4	1
	Yes	0	0	1	1	0
Previous Information About Arteriogram:	No	0	1	1	2	0
	Yes	0	0	1	3	1

TABLE 10. A FREQUENCY DISTRIBUTION OF THE VARIABLES OF AGE, SEX, EDUCATIONAL LEVEL, PREVIOUS EXPERIENCE, AND PREVIOUS INFORMATION FOR THE RESPONSES TO ITEM XII ON THE POSTARTERIOGRAM QUESTIONNAIRE (DO YOU THINK ALL PATIENTS WHO WILL HAVE AN ARTERIOGRAM SHOULD SEE THE SLIDE PROGRAM?)

		Yes	No
Age:	Younger than 61.6 yrs.	2	1
	Older than 61.6 yrs.	6	0
Sex:	Male	6	0
	Female	2	1
Educational Level:	Less than High School	3	0
	High School	4	1
	More than High School	1	0
Previous Arteriogram Performed:	No	6	1
	Yes	2	0
Previous Information About Arteriogram:	No	3	1
	Yes	5	0